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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Attorney Docket No: 37945-0005

Applicant: Richard SMITH *et al.*

Serial No.: 09/214,913 Group Art Unit: 1644

Filing Date: March 16, 1999 Examiner: P. Huynh

Title: CONJUGATES OF SOLUBLE PEPTIDIC COMPOUNDS WITH MEMBRANE-BINDING AGENTS

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RESPONSE TO RESTRICTION REQUIREMENT

Commissioner for Patents
Washington, D.C. 20231

Sir:

Applicants herein respond to the Office Action mailed December 14, 2000 (Paper No. 9). Applicants petition for a five-month extension of time, as well as any other needed extension, and provide the requisite fee herewith. Please debit any underpayments, or credit any overpayments, to firm deposit account no. 08-1641.

Applicants hereby elect with traverse the claims of Group VI, namely claims 1-24, 26-28, 35-37, 41, 44, 47 and 50 drawn to a "soluble derivative of a soluble polypeptide derivative with membrane binding elements wherein the membrane binding element is a basic amino acid sequence consisting of GSSKSPSKKKKK[K]PGD, and pharmaceutical composition of said polypeptide classified in Class 530, subclass 350." Applicants also elect the claims of Groups XXVII, XXIX, XXX and XXXI.

Applicants traverse the rejection on the grounds that the examiner has applied a routine U.S. restriction requirement to a National Phase of a PCT application, where unity of invention rules apply. First, the examiner essentially re-writes the independent claims in a manner not found in the application to delineate species the examiner believes that the genus claims cover. Unity of invention, however, requires that all claims reciting the special technical feature be examined, and that examination must be for the claims as written.

According to Annex B of the PCT Administrative Instructions (enclosed), even claims that are in different statutory categories still have unity of invention as long as each claim recites the special technical feature. Example 1 of Annex B indicates that claims reciting substance X, methods of making substance X, and an insecticidal use of substance X have unity of invention because each recites substance X. Example 12 shows that multiple embodiments of an invention that still recite the same technical feature also possess unity of invention. Thus, all claims that recite the special technical feature must be examined together in the manner in which the claims are written.

Because the special technical feature is found at least in the claims of Groups XXVII, XXIX, XXX, and XXXI, these too must be examined. The claims of Group XXVII are directed to process of making soluble derivatives with recombinant DNA techniques, and thus present a similar situation to Example 17 of Annex B of the PCT Administrative Instructions, where unity of invention was found. The claims of Groups

thus are analogous to the situation presented in Example 4 of Annex B where unity of invention was found for a compound family and a bioactive use of a member compound for insecticidal purposes.

Returning to the restriction requirement, the examiner's citation of the Hebell PCT is inapposite to the present invention and the determination of unity of invention. Hebell discloses a fusion protein containing SCR1 and an antibody. The specificity of the antibody is of no consequence as long as it does not interfere with the function of the fusion protein. See page 14, second full paragraph. In contrast, applicants invention concerns, in one aspect, soluble derivatives of a polypeptide, such as SCR 1-3, bound to heterologous binding elements with low membrane affinity, such as those employing myristoyl. See example 8 of applicants' specification. Hebell does not even address low membrane affinity. Because the teachings of Hebell and applicants' claimed invention are so different, Hebell has no impact on the subject matter that constitutes the special technical feature of applicants' invention.

With regard to the species election at page 9-10, applicants submit that such a requirement is improper in a unity of invention context and thus applicants traverse the requirement. Applicants nevertheless elect as follows:

* Inappropriate complement activation – (B) hyperacute allograft rejection;

* Inflammatory disorder – (B) Adult respiratory disorder;

* Post-Ischemic Reperfusion Condition – (F) Renal ischemia; and

* Immune Complex Disorders – Rheumatoid arthritis (applicants note that this was not included in the restriction requirement).

Finally, applicants submit that the examiner's restriction requirement runs contrary to the Final Guidelines on Written Description, published at 66 Fed. Reg. 1099 and available on the USPTO web site. The written description guidelines first instruct examiners to determine what the claim as a whole covers and then review the entire specification to determine whether all subject matter that is essential to the invention is actually recited in the claims. See written description guidelines at II(A)(1), (2).

Next, the examiners are instructed to determine whether the applicant was in possession of all that is claimed. See the written description guidelines at II(A)(3). According to the guidelines, possession of a claimed invention can be shown by disclosure of structural characteristics, functional characteristics that correlate with structure or combinations thereof. See the written description guidelines at II(A)(3)(a). Claims that encompass a genus must be supported by a written description of a representative number of species. See the written description guidelines at II(A)(3)(a)(2). The written description of the representative species of the genus can be shown by disclosure of structural characteristics, functional characteristics that correlate with structure or combinations thereof.

Here, applicants have undertaken the effort to provide the examiner with a large number of species to support the generic claims. According to the restriction

species examples of the derivatives (please note the numbering error on page 6 of the restriction requirement). Thus, the multitude of species provided by applicants in order to secure generic claims should not be turned on applicants by way of a lengthy requirement for restriction. That is, both the guidelines and case law of the Federal Circuit have instructed applicants that the road to generic coverage is through the disclosure of at least a "reasonable number of species." The attainment of generic coverage through compliance with the guidelines and applicable case law should not be frustrated through the imposition of restriction requirements.

Applicants respectfully request the examination of claims as detailed herein. Due to the complexity of the restriction requirement and the far-reaching teachings of applicants' invention, applicants believe that an interview with the examiner would be appropriate for advancing the application.

Respectfully submitted,

June 13, 2001

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PART 2

EXAMPLES CONCERNING UNITY OF INVENTION

The application of the principles of unity of invention is illustrated by the following examples for guidance in particular cases.

I. CLAIMS IN DIFFERENT CATEGORIES

Example 1

Claim 1: A method of manufacturing chemical substance X.

Claim 2: Substance X.

Claim 3: The use of substance X as an insecticide.

Unity exists between claims 1, 2 and 3. The special technical feature common to all the claims is substance X.

Example 2

Claim 1: A process of manufacture comprising steps A and B.

Claim 2: Apparatus specifically designed for carrying out step A.

Claim 3: Apparatus specifically designed for carrying out step B.

Unity exists between claims 1 and 2 or between claims 1 and 3. There is no unity between claims 2 and 3 since there exists no common special technical feature between the two claims.

Example 3

Claim 1: A process for painting an article in which the paint contains a new rust inhibiting substance X including the steps of atomizing the paint using compressed air, electrostatically charging the atomized paint using a novel electrode arrangement A and directing the paint to the article.

Claim 2: A paint containing substance X.

Claim 3: An apparatus including electrode arrangement A.

Unity exists between claims 1 and 2 where the common special technical feature is the paint containing sub-

them.

Example 4

Claim 1: Use of a family of compounds X as insecticides.

Claim 2: Compound X_1 belonging to family X.

Provided X_1 has the insecticidal activity and the special technical feature in claim 1 is the insecticidal use, unity is present.

Example 5

Claim 1: A process for treating textiles comprising spraying the material with a particular coating composition under special conditions (e.g., as to temperature, irradiation).

Claim 2: A textile material coated according to the process of claim 1.

Claim 3: A spraying machine for use in the process of claim 1 and characterized by a new nozzle arrangement providing a better distribution of the composition being sprayed.

The process according to claim 1 imparts unexpected properties to the product of claim 2.

The special technical feature in claim 1 is the use of special process conditions corresponding to what is made necessary by the choice of the particular coating. Unity exists between claims 1 and 2.

The spraying machine in claim 3 does not correspond to the above identified special technical feature. Unity does not exist between claim 3 and claims 1 and 2.

Example 6

Claim 1: A fuel burner with tangential fuel inlets into a mixing chamber.

Claim 2: A process for making a fuel burner including the step of forming tangential fuel inlets into a mixing chamber.

Claim 3: A process for making a fuel burner including casting step A.

Claim 4 An apparatus for carrying out a process for making a fuel burner including feature X resulting in the formation of tangential fuel inlets.

Claim 5: An apparatus for carrying out a process for making a fuel burner including a protective housing B.

Claim 6: A process of manufacturing carbon black including the step of tangentially introducing fuel into a mixing chamber of a fuel burner.

with one another.

Example 7

Claim 1: A high corrosion resistant and high strength ferritic stainless steel strip consisting essentially of, in percent by weight: Ni=2.0–5.0; Cr=15–19; Mo=1–2; and the balance Fe having a thickness of between 0.5 and 2.0 mm and a 0.2% yield strength in excess of 50 kg/mm squared.

Claim 2: A method of producing a high corrosion resistant and high strength ferritic stainless steel strip consisting essentially of, in percent by weight: Ni=2.0–5.0; Cr=15–19; Mo=1–2; and the balance Fe, comprising the steps of:

hot rolling to a thickness between 2.0 and 5.0 mm;

annealing the hot rolled strip at 800–1000° C under substantially no oxidizing conditions;

cold rolling the strip to a thickness of between 0.5 and 2.0 mm; and final annealing the cold rolled strip at between 1120 and 1200°C for a period of 2–5 minutes.

Unity exists between product claim 1 and process claim 2. The special technical feature in the product claim is the 0.2% yield strength in excess of 50 kg/mm squared. The process steps in claim 2 inherently produce a ferritic stainless steel strip with a 0.2% yield strength in excess of 50 kg/mm squared. Even if this feature is not apparent from the wording of claim 2, it is clearly disclosed in the description. Therefore said process steps are the special technical feature which correspond to the limitation in the product claim directed to the same ferritic stainless steel with the claimed strength characteristics.

II. CLAIMS IN THE SAME CATEGORY

Example 8

Claim 1: Plug characterized by feature A.

Claim 2: Socket characterized by corresponding feature A.

Feature A is a special technical feature which is included in both claims 1 and 2 and therefore unity is present.

Example 9

Claim 1: Transmitter provided with time axis expander for video signals.

Claim 2: Receiver provided with time axis compressor for video signals received.

Claim 3: Transmission equipment for video signals comprising a transmitter provided with time axis expander for video signals and a receiver provided with time axis compressor for video signals received.

The special technical features are in claim 1 the time axis expander, and in claim 2 the time axis compressor, which are corresponding technical features. Unity exists between claims 1 and 2. Claim 3 includes both special technical features and has unity with claims 1 and 2. The requirement for unity would still be met in the absence of the com-

Claim 1: Conveyor belt with feature A

Claim 2: Conveyor belt with feature B.

Claim 3: Conveyor belt with features A + B.

Feature A is a special technical feature and feature B is another unrelated special technical feature. Unity exists between claims 1 and 3 or between claims 2 and 3, but not between claims 1 and 2.

Example 11

Claim 1: Control circuit A for a d.c. motor.

Claim 2: Control circuit B for a d.c. motor.

Claim 3: An apparatus including a d.c. motor with control circuit A.

Claim 4: An apparatus including a d.c. motor with control circuit B.

Control circuit A is a special technical feature and control circuit B is another unrelated special technical feature. Unity exists between claims 1 and 3 or between claims 2 and 4, but not between claims 1 and 2 or 3 and 4.

Example 12

Claim 1: A display with features A + B.

Claim 2: A display according to claim 1 with additional feature C.

Claim 3: A display with features A + B with additional feature D.

Unity exists between claims 1, 2, and 3. The special technical feature common to all the claims is features A + B.

Example 13

Claim 1: Filament A for a lamp.

Claim 2: Lamp B having filament A.

Claim 3: Searchlight provided with lamp B having filament A and a swivel arrangement C.

Unity exists between claims 1, 2, and 3. The special technical feature common to all the claims is the filament A.

Example 14

Claim 1: A marking device for marking animals, comprising a disc-shaped element with a stem extending normally therefrom, the tip of which is designed to be driven through the skin of the animal to be marked, and a securing disk element to be fastened to the protruding tip of the stem on the other side of skin.

[illegible] tion in question of the animal to be marked.

The special technical feature in claim 1 is the marking device having a disc–shaped element with a stem and a securing disc element to be fastened to the tip of the stem. The corresponding special technical feature in claim 2 is the pneumatically actuated gun for driving the marking device and having a supporting surface for the securing disc element. Unity exists between claims 1 and 2.

Example 15

Claim 1: Compound A.

Claim 2: An insecticide composition comprising compound A and a carrier.

Unity exists between claims 1 and 2. The special technical feature common to all the claims is compound A.

Example 16

Claim 1: An insecticide composition comprising compound A (consisting of a_1, a_2 ...) and a carrier.

Claim 2: Compound a_1.

All compounds A are not claimed in the product claim 2 for reasons of lack of novelty of some of them for instance. There is nevertheless still unity between the subject matter of claims 1 and 2 provided a_1 has the insecticidal activity which is also the special technical feature for compound A in claim 1.

Example 17

Claim 1: Protein X

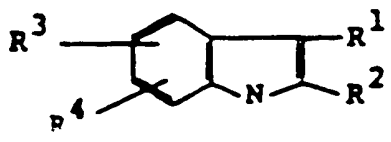
Claim 2: DNA sequence encoding protein X.

Expression of the DNA sequence in a host results in the production of a protein which is determined by the DNA sequence. The protein and the DNA sequence exhibit corresponding special technical features. Unity between claims 1 and 2 is accepted.

III. MARKUSH PRACTICE

Example 18 — common structure:

Claim 1: A compound of the formula:

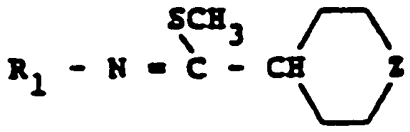


the capacity of the blood to absorb oxygen.

In this case the indolyl moiety is the significant structural element which is shared by all of the alternatives. Since all the claimed compounds are alleged to possess the same utility, unity is present.

Example 19 — common structure:

Claim 1: A compound of the formula:

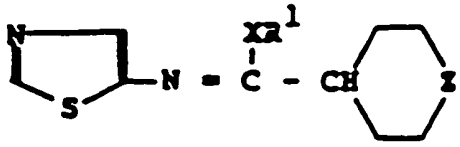


wherein R_1 is selected from the group consisting of phenyl, pyridyl, thiazolyl, triazinyl, alkylthio, alkoxy, and methyl; Z is selected from the group consisting of oxygen (O), sulfur (S), imino (NH), and methylene ($-CH_2-$). The compounds are alleged to be useful as pharmaceuticals for relieving lower back pain.

In this particular case the iminothioether group $-N=C-SCH_3$ linked to a six atom ring is the significant structural element which is shared by all the alternatives. Thus, since all the claimed compounds are alleged to possess the same use, unity would be present. A six membered heterocyclic ring would not have been of sufficient similarity to allow a Markush grouping exhibiting unity, absent some teaching of equivalence in the prior art.

Example 20 — common structure

Claim 1: A compound of the formula:

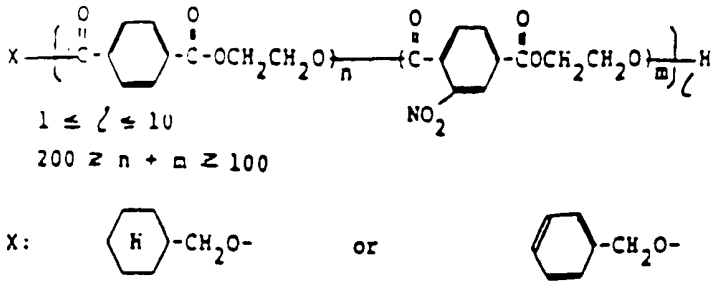


wherein R^1 is methyl or phenyl, X and Z are selected from oxygen (O) and sulfur (S).

The compounds are useful as pharmaceuticals and contain the 1,3-thiazolyl substituent which provides greater penetrability of mammalian tissue which fact makes the compounds useful as relievers for headaches and as topical anti-inflammatory agents.

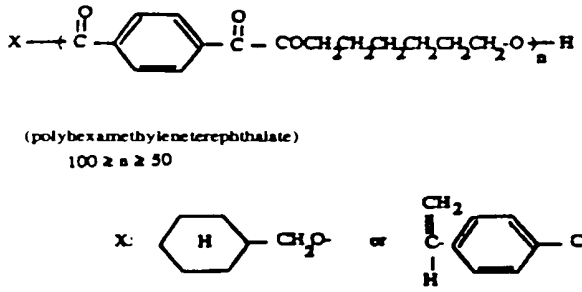
[illegible] relieving in the prior art.

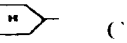
Example 21 — common structure:



All of the above copolymers have in common a thermal degradation resistance property, due to the reduced number of free COOH radicals by esterification with X of the end COOH radicals which cause thermal degradation. The chemical structures of the alternatives are considered to be technically closely interrelated to one another. A grouping in one claim is therefore allowed.

Example 22 — common structure:



The compound obtained by esterifying the end COOH radical of known polyhexamethyleneterephthalate with  CH_2O- has a thermal degradation resistant property, due to the reduced number of free COOH radicals which cause thermal degradation. In contrast, the compound obtained by esterifying the end COOH radical of known polyhexamethyleneterephthalate with a vinyl compound containing a $CH_2 = CH-$  CH_2O- moiety serves as a raw material for a setting resin when mixed with unsaturated monomer and cured (addition reaction).

All esters covered by the claim do not have a property or activity in common. For example, the product obtained through esterification with the "$CH_2 = CH$" vinyl compound does not have a thermal degradation resistant property. The grouping in a single application is not allowed.

Example 23 — No common structure:

consisting of copper sulfate, sodium chlorate, ammonium sulfamate, sodium trichloroacetate,

dichloropropionic acid, 3−amino−2,5−dichlorobenzoic acid, diphenamid (an amide), ioxynil (nitrile), dinoseb (phenol), trifluralin (dinitroaniline), EPTC (thiocarbamate), and simazine (triazine) along with an inert carrier or diluent.

The different components under B must be members of a recognized class of compounds. Consequently in the present case a unity objection would be raised because the members of B are not recognized as a class of compounds, but, in fact, represent a plurality of classes which may be identified as follows:

a) **inorganic salts:**

copper sulfate
sodium chlorate
ammonium sulfamate

b) **organic salts and carboxylic acids:**

sodium trichloroacetate
dichloropropionic acid
3−amino−2,5−dichlorobenzoic acid

c) **amides:**

diphenamid

d) **nitriles:**

ioxynil

e) **phenols:**

dinoseb

f) **amines:**

trifluralin

g) **heterocyclic:**

simazine

Example 24

Claim 1: Catalyst for vapor phase oxidation of hydrocarbons, which consists of (X) or (X + a).

In this example (X) oxidizes RCH_3 into RCH_2OH and (X+a) oxidizes RCH_3 further into RCOOH.

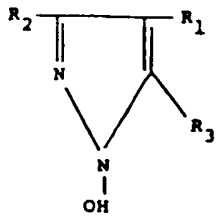
Both catalysts share a common component and a common activity as oxidation catalyst for RCH_3 With (X+a) the oxidation is more complete and goes until the carboxylic acid is formed but the activity still remains the same.

A Markush grouping is acceptable.

IV. INTERMEDIATE/FINAL PRODUCTS

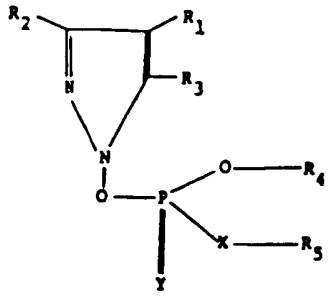
Example 25

Claim 1:



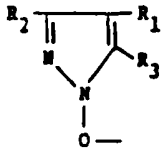
(intermediate)

Claim 2:



(final product)

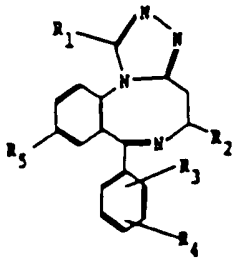
The chemical structures of the intermediate and final product are technically closely interrelated. The essential structural element incorporated into the final product is:



Therefore, unity exists between claims 1 and 2.

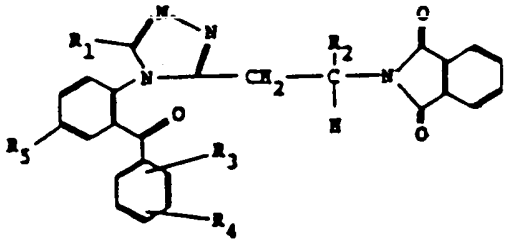
Example 26

Claim 1:



(I)

Claim 2:



(II)

(II) is described as an intermediate to make (I). The closure mechanism is one well known in the art. Though the basic structures of compound (I) (final product) and compound (II) (intermediate) differ considerably, compound (II) is an open ring precursor to compound (I). Both compounds share a common essential structural element which is the linkage comprising the two phenyl rings and the triazole ring. The chemical structures of the two compounds are therefore considered to be technically closely interrelated.

The example therefore satisfies the requirement for unity of invention.

Example 27

Claim 1: Amorphous polymer A (intermediate).

Claim 2: Crystalline polymer A (final product).

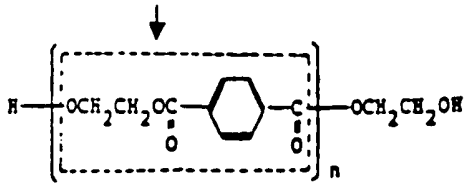
In this example a film of the amorphous polymer A is stretched to make it crystalline. Here unity exists because there is an intermediate final product relation in that amorphous polymer A is used as a starting product to prepare crystalline polymer A.

For purposes of further illustration, assume that the polymer A in this example is polyisoprene. Here the intermediate, amorphous polyisoprene, and the final product, crystalline polyisoprene, have the same chemical structure.

Example 28

Claim 1: Polymeric compound useful as fiber material identified by the following general formula:

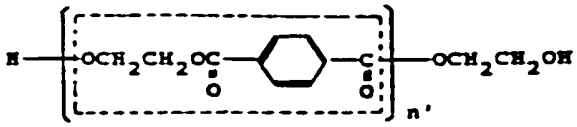
[repeating unit (X)]



(I)

Claim 2: Compound identified by the following general formula:

(useful as intermediate for polymeric compound I)



(II)

(primary condensation product)

The two inventions are in an intermediate and final product relationship.

Substance (II) is a raw material for substance (I).

Meanwhile, both compounds share an essential structural element (repeating unit (X)) and are technically closely interrelated. The intermediate and final products therefore satisfy the requirements for unity.

Example 29

Claim 1: Novel compound having structure A (Intermediate).

Claim 2: Product prepared by reacting A with a substance X (Final Product).

Example 30

Claim 1: Reaction product of A and B (Intermediate).

Claim 2: Product prepared by reacting the reaction product of A and B with substances X and Y (Final Prod

In examples 29 and 30 the chemical structure(s) of the intermediate and/or the final product is not known. In (29) the structure of the product of claim 2 (the final product) is not known. In (30) the structures of the products of claim 1 (the intermediate) and claim 2 (the final product) are unknown. Unity exists if there is evidence which would lead one to conclude that the characteristic of the final product which is the inventive feature in the case is due to the intermediate. For example, the purpose for using the intermediates in (29) or (30) is to modify certain properties of the final product. The evidence may be in the form of test data in the specification showing the effect of the intermediate on the final product. If no such evidence exists then there is no unity on the basis of an intermediate – final product relationship.